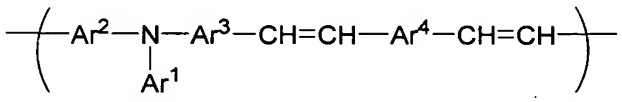
WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY LETTERS PATENT OF THE UNITED STATES IS:

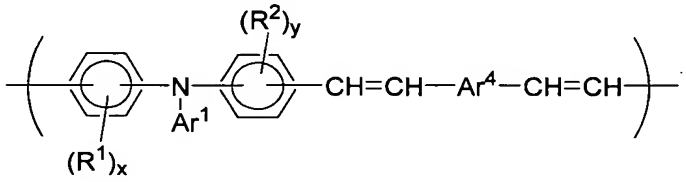
1. A polymer comprising a repeat unit represented by the following formula (I):



(I)

wherein, Ar^1 represents a substituted aromatic hydrocarbon group or a non-substituted aromatic hydrocarbon group, Ar^2 and Ar^3 each, independently, represent a divalent aromatic hydrocarbon selected from the group consisting of substituted or non-substituted monocyclic aromatic hydrocarbons, substituted or non-substituted non-condensed polycylic aromatic hydrocarbons and substituted or a non-substituted condensed polycylic aromatic hydrocarbons and Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can optionally have a substituent.

2. The polymer according to Claim 1, wherein the repeat unit is represented by the following formula (II):

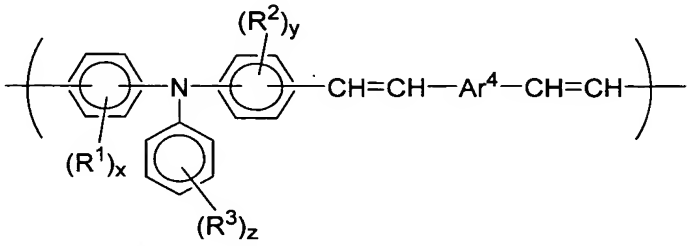


(II)

wherein, Ar^1 represents a substituted aromatic hydrocarbon group or a non-substituted aromatic hydrocarbon group, Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can optionally have a substituent, R^1 and R^2 each, independently, represent a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group or a substituted

or non-substituted alkylthio group, and x and y each, independently represent 0 or an integer of from 1 to 4.

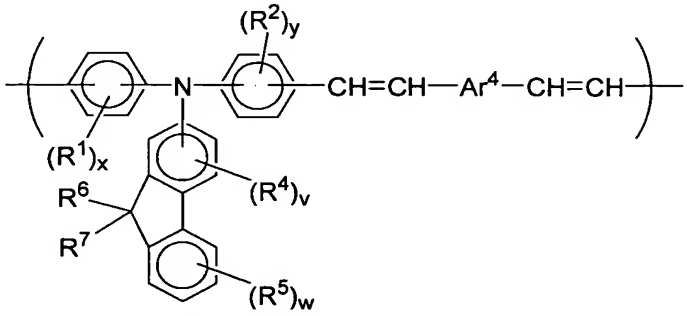
3. The polymer according to Claim 2, wherein the repeat unit is represented by the following formula (III):



(III)

wherein, Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can optionally have a substituent, R^1 and R^2 each, independently, represent a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group or a substituted or non-substituted alkylthio group, R^3 represents a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group, a substituted or non-substituted alkylthio group or a substituted or non-substituted aryl group, x and y each, independently, represent 0 or an integer of from 1 to 4 and z represents 0 or an integer from 1 to 5.

4. The polymer according to Claim 2, wherein the repeat unit is represented by the following formula (IV):

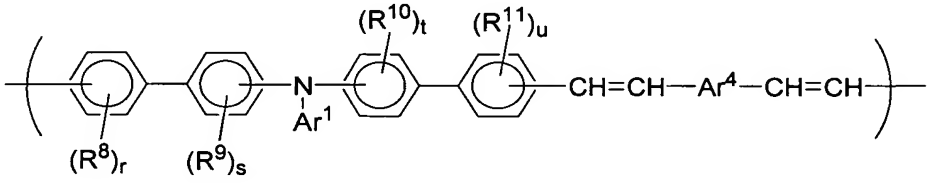


(IV)

wherein, Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can optionally

have a substituent, R^1, R^2, R^4, R^5, R^6 and R^7 each, independently, represent a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group or a substituted or non-substituted alkylthio group, v represents 0 or an integer of from 1 to 3 and w, x and y independently represent 0 or an integer of from 1 to 4.

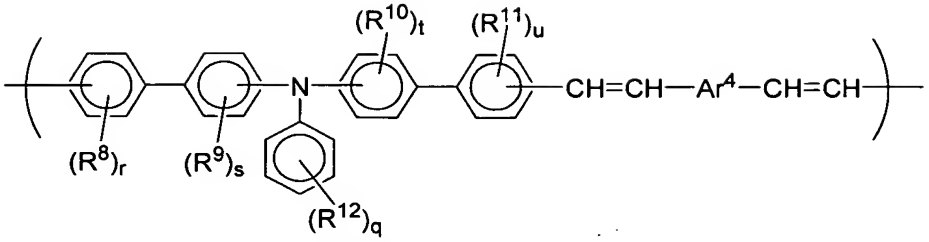
5. The polymer according to Claim 1, wherein the repeat unit is represented by the following formula:



(V)

wherein, Ar^1 represents a substituted aromatic hydrocarbon group or a non-substituted aromatic hydrocarbon group, Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can optionally have a substituent, R^8, R^9, R^{10} and R^{11} each, independently, represent a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group or a substituted or non-substituted alkylthio group, and r, s, t and u each, independently, represent 0 and an integer of from 1 to 4.

6. The polymer according to Claim 5, wherein the repeat unit is represented by the following formula (VI):



(VI)

wherein, Ar^4 represents a bivalent group of benzene, thiophene, biphenyl or anthracene, each of which can have a substituent, R^8, R^9, R^{10}, R^{11} and R^{12} each, independently, represent a halogen atom, a substituted or non-substituted alkyl group, a substituted or non-substituted alkoxy group or a substituted or non-substituted alkylthio group, q represents 0 or an integer of from 1 to 5 and r, s, t and u each, independently, represent 0 or an integer of from 1 to 4.

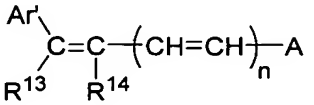
7. The polymer according to Claim 1, wherein at least one of Ar^1, Ar^2, Ar^3 and Ar^4 included in the repeat unit comprises:

at least one substituted or non-substituted alkyl group, substituted or non-substituted alkoxy group or substituted or non-substituted alkylthio group, each of which comprises a straight chain or a branched chain and having 2 to 18 carbon atoms.

8. An organic semiconductor material comprising:

the polymer according to Claim 1; and

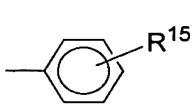
a compound represented by the following formula (VII):

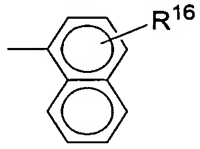


(VII)

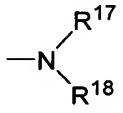
wherein, n is 0 or 1, Ar' represents a substituted aryl group or a non-substituted aryl group, R^{13} and R^{14} each, independently, represent a hydrogen atom, a substituted or non-substituted alkyl group, or a substituted or

non-substituted aryl group, wherein Ar' and R^{13} can optionally combine to form a ring, A represents a 9-anthryl group, a substituted or non-substituted carbazolyl group, a group represented by the following formula (1), or a group represented by the following formula (2):


(1)


(2)

wherein R^{15} and R^{16} each, independently, represent a hydrogen atom, an alkyl group, alkoxyl group, a halogen atom or a group represented by the following formula (3):


(3)

wherein, R^{17} and R^{18} each, independently, represent a substituted or non-substituted alkyl group or a substituted or non-substituted aryl group, wherein R^{17} and R^{18} can optionally combine to form a ring.

9. An organic thin film transistor comprising:

a substrate;

an organic semiconductor layer which comprises the polymer according to Claim 1 and which is located overlying the substrate;

an electrode pair having a source electrode and a drain electrode; and

a third electrode.

10. The organic thin film transistor comprising:

a substrate;

an organic semiconductor layer which comprises the organic semiconductor material of Claim 8 and which is located overlying the substrate;

an electrode pair having a source electrode and

a drain electrode; and

a third electrode.

11. The organic thin film transistor according to Claim 9, wherein at least one of Ar^1, Ar^2, Ar^3 and Ar^4 included in the repeat unit comprises:

at least one substituted or non-substituted alkyl group, substituted or non-substituted alkoxy group or substituted or non-substituted alkylthio group, each of which comprises a straight chain or a branched chain and having 2 to 18 carbon atoms.

12. The organic thin film transistor according to Claim 9, further comprising an insulation layer between the electrode pair and the third electrode.

13. The organic thin film transistor according to Claim 12, wherein the insulation layer has a surface energy of from 25 to 40 mN/m.

14. The organic thin film transistor according to Claim 9, wherein the organic semiconductor layer has a surface having a surface roughness not greater than 1 nm in PV value.

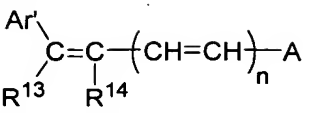
15. A method of manufacturing an organic thin film transistor, comprising:

applying a solution comprising a solvent and the polymer according to Claim 1 on the substrate; and

drying the solvent of the applied solution to form an organic layer on the substrate.

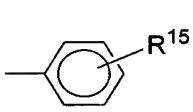
16. The method according to Claim 15, wherein the solution further comprises a compound having the following

formula (VII):

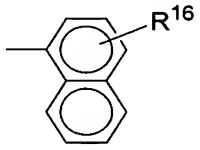


(VII)

wherein, n is 0 or 1, Ar′ represents a substituted aryl group or a non-substituted aryl group, R^{13} and R^{14} each, independently, represent a hydrogen atom, a substituted or non-substituted alkyl group, or a substituted or non-substituted aryl group, wherein Ar′ and R^{13} can optionally combine to form a ring, A represents a 9-anthryl group, a substituted or non-substituted carbazolyl group, a group represented by the following formula (1), or a group represented by the following formula (2):

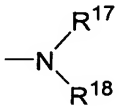


(1)



(2)

wherein R^{15} and R^{16} each, independently, represent a hydrogen atom, an alkyl group, alkoxyl group, a halogen atom or a group represented by the following formula (3):



(3)

wherein, R^{17} and R^{18} each, independently, represent a substituted or non-substituted alkyl group or a substituted or non-substituted aryl group, and wherein R^{17} and R^{18} can optionally combine to form a ring.

17. The method according to Claim 15, further comprising forming an insulation layer overlying the substrate, wherein the solution is applied on a surface of the insulation layer, and wherein the surface of the insulation layer has a surface energy of from 25 to 40 mN/m.

18. The method according to Claim 17, further

comprising:

subjecting the surface of the insulation layer to a silane coupling treatment before said solution applying step.

19. The method according to Claim 15, wherein the organic semiconductor layer has a surface having a surface roughness not greater than 1 nm in PV value.

20. The method according to Claim 15, wherein the organic semiconductor layer is applied by a cup spin method.

21. The method according to Claim 15, wherein the solvent comprises:

tetrahydrofuran serving as a main component; and

at least one element selected from the group consisting of toluene, xylene, dioxane, chloroform and dichloromethane.

22. The method according to Claim 15, wherein the solvent is dried at a temperature not higher than 150 °C.